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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/679,617	10/06/2003	Stan Stokowski	5589-04101 P992	3334

35617 7590 02/28/2006

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EXAMINER
ROSENBERGER, RICHARD A

ART UNIT	PAPER NUMBER
2877	

DATE MAILED: 02/28/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

A

Office Action Summary	**Application No.** 10/679,617	**Applicant(s)** STOKOWSKI ET AL.	
	Examiner Richard A. Rosenberger	**Art Unit** 2877	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *16, 18-20* is/are allowed.

6)☒ Claim(s) *1-8,19-15,17* is/are rejected.

7)☒ Claim(s) *9* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 10/6/03; 2/2/04; 2/13/04; 5/22/04
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

1. In the specification, page 21, lines 16-19, there is a reference to a copending application which is incorporated by reference, but the serial number, and patent number if any, has been omitted. The serial number of this application, and patent number if the application has issued, must be inserted for completeness of disclosure.

2. Claims 2 and 7 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Independent claim 1 sets forth two separate subsystems coupled together. Claim 2, dependent from claim 1, calls for the two separate subsystems having common optics. There is no support for the two separate subsystems having common optics. The specification, on page 40, lines 8-14, does state that the "inspection subsystem and the defect subsystem may have common optics", but makes reference then to the system as "shown in Figs. 1 or 2". Claim 1, however, excludes the system as shown in figures 1 and 2; those figures do not have "an inspection subsystem ..." and a "review subsystem coupled to the inspection subsystem", but rather has but one subsystem as that term is defined in claim 1.

Claim 7, dependent from claim 6, calls for an inspection system comprising two separate subsystems both of which generate aerial imaged (from claim 6) is "further configured to generate a database comprising a reference image of the reticle". There does not appear to be adequate disclosure for how the claimed inspection structure, with its two subsystems, can be used for the generation of the database comprising a reference image. The specification, page 48, lines 25-26 states that this can be done, but does not appear to include any disclosure of how it is to be done, or how the particular aspects of the invention as disclosed and claimed are to be used to accomplish this end.

3. Claims 10 and 11 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 10 and 11 both set forth that one of the claimed subsystems, the "inspection subsystem", "detects defects on the reticle". Claims 10 then adds that the defects are "classified using the image data" either "from the inspection substation or the review subsystem". This alternative language is unclear. The claim as to the second alternative, the use of the "review substation", is consistent with parent claim 6 and the disclosure, which sets forth the second subsystem is "used to analyze the defects". The first alternative, which uses the data from the "inspection subsystem" for the claimed analysis, is unclear. It does not appear to be consistent with the parent claim 6, which associates the data from the "review subsystem" with the analysis, and also renders, as claimed, the second, "review", subsystem, functionless, as the disclosed and claimed function of the second subsystem is being claimed as assigned to the first subsystem.

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –

> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claim 2 as it appears to have been intended, and claim 1 as it appears to be intended to be read as a parent claim to claim 2, are rejected under 35 U.S.C. 102(b) as being rejected by Kenan et al (US 6,268,093).

Kenan et al appears to show an optical system such as in shown in figures 1 and 2 of the instant specification. It appears that what was intended in claim 2, and in claim 1 as a parent claim to claim 1, is the optical system of figures 1 and 2, with the "inspection subsystem" and the "review subsystem" being one and the same, with the "first aerial image" being the same as the "second aerial image", being formed by the same optics in the same place. Thus the system of Kenan et al is the same as the system claimed in what appears to be the intended reading of claim 2 and 1 as a parent to claim 2. It is noted that claim 1 and claim 2 do not require the aerial image be detected or actually used, but merely that it "can be used" for both detecting and analyzing defects. The aerial image of Kenan et al can be used for both these purposes.

7. Claims 1, 3, 5, 6, and 8 are rejected under 35 U.S.C. 102(b) as being anticipated by Feldman et al (US 4,595,289).

As in claim 1, Feldman et al shows a first subsystem which forms, by means of lens system 28, a first aerial image of a reticle (or mask), and a second subsystem which forms a second aerial image, by means of lens system 30. The first image can be used to detected defects, and the second can be used to analyze defects. Claim 1 does not claim that the aerial images are used for these functions, but only that they "can be used" for these functions, and the aerial images of Feldman et al possess the inherent capability to be so used.

As in claim 3, the two subsystems have separate optics and a common stage.

As in claim 5, as the two system obtain their images separately, it is possible that inspection and review could be performed substantially simultaneously. Claim 5 does not claim that that inspection and review are actually performed substantially simultaneously, but only that the "can be" so performed, and the system of Feldman et al allows for such.

As in claim 6, as in claim 1 above, the Feldman et al reference shows two subsystems which form aerial images which can be used to detect and analyze defects. There is an image computer (36) which is configured to receive the image data form the two subsystems and performs "one of more functions" on the image data.

As in claim 8, the computer of Feldman et al compares a portion of the data from one substation to that from the other (column 4, lines 4-5; "the signals ... are compared ...").

8. Claims 12-15 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Feldman et al (us 5,95,289) in view of the prior art discussed in the specification.

See above for a discussion of claim 6, from which these claims depend.

As in claims 12-14, it would have been obvious to use the data obtained by the inspection in process control by communication with appropriate databases; the instant specification points to, and incorporates by reference, prior art documents for the disclosure of such use of inspection data in process control; see, for example, the paragraph of the specification bridging pages 57 and 58.

As in claim 15, the use of parallel processing would have been obvious because, as is well known in the art, such parallel processing can result in reduced processing time and thus higher throughput.

As to claims 17, it parent claim 16 calls for separate inspection and analyzing steps based upon two separate aerial images. Claim 17 claims that these two steps are performed "substantially simultaneously". However, it does not appear clear what is meant by this or how it is to be accomplished. Clearly if the reticle being inspected must be moved form one subsystem to the other to form the two aerial images, the analysis of the images will not normally be performed "substantially simultaneously".

9. Claims 1 and 4 are rejected under 35 U.S.C. 103(a) as being obvious over Micka (US 3,909,602).

In figure 2 the Micka reference shows a system with two subsystems both of which form aerial images of the object being inspected. The images "can be used" for detect and analyze defects. Figure 2 shows the system with separate stages. The claims do be limited by the recitation that the objects being inspected are "reticles", that is, no structure recited in the claim makes the system particularly directed to the inspection of reticles rather than the chips of Micka. Alternatively, it would have been obvious to use a system such as shown by Micka to inspect any patterned object, including reticles, because the system of Micka is an inspection system which would have been recognized by those in the art as having the capability and utility of inspecting other patterned objects than only the chips specifically disclosed in the reference.

The Micka reference does not appear to discuss a "handler" for the objects being inspected. The objects being used in the inspection must be "handled"; that is, they must be placed correctly onto the stages. It would have been obvious to use a "common handler" to so place the objects being inspected because this would reduce expenses be no requiring separate means for placement. It is noted that claim 4 does not place any limitation on what type of structure the "handler" of the claim may be.

10. Claims 16, and 18-20 appear to be allowable. The art does not appear to teach or suggest inspecting a reticle in a first system using a first aerial image, and then reviewing them using a second aerial image in the same system to analyze the defects. As understood, the language in claim 16 referring to "a first aerial image" and a "second aerial image" requires that the "aerial images" be different, that is, that they be produced by different optics (or different "subsystems"); it there were but one optical system (as in Kenan et al, for example, it appears to be unreasonable to refer to the single aerial image as both a "first" and a "second" aerial image. With this understanding, claim 16 is allowable as the art does not teach using tow different subsystems, both of which

produce aerial images, and using one to detect defects and the other to analyze the defects.

Claim 9 also appears to contain allowable subject matter. The art of record which has two separate subsystems both of which form aerial images use the two images to compare with each other, as in Micka (figure 2) and Feldman et al. The art appears to teach that "comparing the images data form the inspection subsystem to a reference image ... in a database" is an alternative to having a second subsystem forming a second image; compare figures 1 and 2 of Micka and see Feldman et al, column 1, lines 45-47. Thus the art does not appear to teach, as in claim 9, a system with two separate subsystems which form separate aerial images, and also compare the image from one of the subsystems to a reference image stored in a database. Claim 9 is objected to as being dependent from an unallowed parent claim, but would be allowed were it rewritten in independent form including all of the limitation of it parent claim.

11. Erhardt et al (US 6,513,151) shows detecting defects and then analyzing them; note figure 4, with boxes 450 and 410, and figure 5, with boxes 550 and 510. However, the system of figure 4, it is data from the defect scanner 450 that is sent to the defect analyzer 410 (column 8, lines 37-39), and similarly for the system of figure 5 (column 10, lines 24-26). Thus it appears that the system of Erhard et al does not have separate subsystem with separate aerial image formed in the subsystems to perform the defect detection and the defect analysis.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Richard A Rosenberger whose telephone number is (571) 272-2428. The examiner can normally be reached on Monday through Friday during the hours of 8:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory J. Toatley, Jr. can be reached on (571) 272-2800 ext. 77. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

R. A. Rosenberger
23 February 2006

Richard A. Rosenberger
Primary Examiner